

13.0 AOC 17 – FIELD PERSONNEL DECONTAMINATION AREA

13.1 LOCATION OF STUDY AREA

The Field Personnel Decontamination Area comprises approximately 0.7 acre within the Cantonment Area at the Fort McClellan, Alabama Army Installation (Fig. 1). The study area boundary was devised by adding a 70-ft buffer outside of the Field Personnel Decontamination Area site boundary.

13.2 AERIAL PHOTOGRAPH QUALITY ISSUES

A few photograph quality issues were encountered during photograph interpretation. They were corrected as follows:

- X **Quality** - In many areas of the photographs, the dynamic range of brightness values was insufficient to distinguish land cover classes. Due to extreme brightness (almost white), ground cover such as grass, bare soil, trails, and roads could not be differentiated. At other locations, extremely dark (nearly black) areas made it difficult to delineate grass from forested areas. Where appropriate, the problem areas of the photographs were subset and image enhancement techniques were applied. Simple adjustments to the brightness and contrast were conducted, or in more severe cases, performing a histogram equalization in the range of the lookup table was performed on the specific area where interpretation was difficult. Photographic interpretation could not be conducted on the 1937 photographs due to the poor quality of the photographs.
- X **Rectification** - Although second- and third-order transformations were used in the rectification of the digital photographs, several rectified photographs contained too much error within the Field Personnel Decontamination Area to accurately digitize land use/cover polygons. Factors contributing to the error included: (1) insufficient ground control points (GCPs) due to pronounced changes in land cover between years, (2) photographic distortion (location of the site in relation to the center of the photograph and the angle of the camera/aircraft when the photograph was acquired), and (3) terrain distortion (a single photograph may cover a large geographic area of varying elevations even though the site of interest may have little topographic relief). To improve the photographic registration of the study area, the Field Personnel Decontamination Area was subset from the rectified digital photographs in question and the newly-created image files were rectified separately.

13.3 FINDINGS

Complete photographic coverage of the study area was available for eight years of photographic coverage from 1937 to 1994. A total of 122 anomalies were identified in the year-by-year land cover analysis (Fig. 2). All anomalies were inspected to ascertain the cause of each anomaly. All anomalies were resolved except for two unidentified objects. Anomalies potentially associated with waste disposal or chemical training activities were determined to be of potential concern and should be assessed by the USAESCH. During the final quality assurance review of the land use/cover anomalies, a numbering error was detected; there is no anomaly associated with the number 80. This erroneous anomaly is identified as “QA” in Table 2 and will not be discussed further. Of the anomalies identified, 96 were caused by new roads, pre-existing and former roads and trails,

construction and removal of buildings and other structures, landscaping, and former or pre-existing cleared areas. The remaining 25 anomalies were the result of new trails, the clearing of trees and/or groundcover, the construction of a shuffle pit, and two unidentified objects; these anomalies are considered to be of potential concern.

1937. The 1937 photographs were not interpreted because of the poor quality of the available photographs (see Fig. 3a). However, no pre-existing anomalous areas were identified during a visual inspection of the photographs.

1937 to 1940. Since the 1937 photographs were not interpreted, the land use/cover was not available. The 1940 photographs were interpreted and no anomalies of potential concern were identified (see Fig. 3b).

1940 to 1944. Eighteen anomalies were identified during the land cover analysis change for the years 1940 and 1944 (see Table 1 and Fig. 3c). All of the anomalies were the result of buildings, landscaping, and roads. There are no anomalies of potential concern.

1944 to 1954. Forty anomalies were identified during the land cover change analysis for the years 1944 and 1954 (see Table 1 and Fig. 3d). Thirty-three of the anomalies were the result of new and pre-existing roads, former buildings and other structures, and former landscaping. The remaining seven anomalies are of potential concern and were the result of new trails (7 anomalies).

1954 to 1961. Thirty anomalies were identified during the land cover change analysis for the years 1954 and 1961 (see Table 1 and Fig. 3e). The twenty-four anomalies were the result of former roads and former structures. The remaining six anomalies are of potential concern and were the result of cleared areas (5 anomalies) and the clearing of trees (1 anomaly).

1961 to 1969. Seven anomalies were identified during the land cover change analysis for the years 1961 and 1969 (see Table 1 and Fig. 3f). Four of the anomalies were the result of pre-existing roads and pre-existing cleared areas. The remaining three anomalies are of potential concern and were the result of the clearing of trees (2 anomalies) and a new trail (1 anomaly).

1969 to 1982. Thirteen anomalies were identified during the land cover change analysis for the years 1969 and 1982 (see Table 1 and Fig. 3g). Ten of the anomalies were the result of pre-existing roads, former and pre-existing trails and cleared areas, new buildings, and other structures. The remaining three anomalies are of potential concern and were the result of the clearing of trees (2 anomalies) and the construction of a shuffle pit (1 anomaly).

1982 to 1994. Thirteen anomalies were identified during the land cover change analysis for the years 1982 and 1994 (see Table 1 and Fig. 3h). Seven of the anomalies were the result of pre-existing roads, trails, buildings, a shuffle pit, cleared areas, and new and pre-existing parking lots. The remaining six anomalies are of potential concern and were the result of the clearing of trees (4 anomalies) and unidentified objects (2 anomalies).

Fig 1

Fig 2

Table 1. Field Personnel Decontamination Area - Anomaly Resolution

Of Potential Concern?	Anomaly #	Year of Change	Discussion	Related Anomalies ¹
	1	1944	Building	19
	2	1944	Building	20
	3	1944	Building	21
	4	1944	Building	32, 33
	5	1944	Building	28, 29, 39, 40
	6	1944	Building	25, 26, 42
	7	1944	Building	22, 43
	8	1944	Building	36 - 38
	9	1944	Landscaping	23, 24, 27, 30, 31, 35, 41
	10	1944	Road	44, 68 - 72, 74, 86, 95, 107, 108, 116, 117
	11	1944	Building	46
	12	1944	Landscaping	47, 48
	13	1944	Building	49
	14	1944	Landscaping	50
	15	1944	Building	45, 51 - 53, 81 - 83
	16	1944	Landscaping	54
	17	1944	Building	55 - 57, 84, 85
	18	1944	Landscaping	58
	19	1954	Former building (first visible 1944)	1
	20	1954	Former building (first visible 1944)	2
	21	1954	Former building (first visible 1944)	3
Yes	22	1954	Trail (former building - first visible 1944)	7, 60, 91, 98
Yes	23	1954	Trail (former landscaping - first visible 1944)	9, 60, 91, 98
Yes	24	1954	Trail (former landscaping - first visible 1944)	9, 60, 91, 99
	25	1954	Former building (first visible 1944)	6
Yes	26	1954	Trail (former building - first visible 1944)	6, 60, 91, 98, 99
Yes	27	1954	Trail (former landscaping - first visible 1944)	9, 60, 91, 99

Of Potential Concern?	Anomaly #	Year of Change	Discussion	Related Anomalies ¹
	28	1954	Former building (first visible 1944)	5, 60, 91, 99, 100, 101
Yes	29	1954	Trail (former building - first visible 1944)	5
Yes	30	1954	Trail (former landscaping - first visible 1944)	9, 60, 91, 101
	31	1954	Former landscaping (first visible 1944)	9
	32	1954	Former building (first visible 1944)	4, 33, 63
	33	1954	Former building (first visible 1944)	4, 32, 63
	34	1954	Former landscaping (first visible 1944)	61 - 63, 92, 102, 103, 114, 115
	35	1954	Former landscaping (first visible 1944)	9
	36	1954	Former building (first visible 1944)	8, 37, 38
	37	1954	Structure (slab or new building); (former building - first visible 1944)	8, 36, 64, 65
	38	1954	Structure (slab or new building); (former building - first visible 1944)	8, 36, 66, 67
	39	1954	Former building (first visible 1944)	5, 40
	40	1954	Structure (slab or new building); (former building - first visible 1944)	5, 39, 87 - 89, 93
	41	1954	Former landscaping (first visible 1944)	9
	42	1954	Former building (first visible 1944)	6
	43	1954	Former building (first visible 1944)	7
	44	1954	Pre-existing road (first visible 1944)	10, 68 - 71, 72, 74, 86, 95, 107, 108, 116, 117
	45	1954	Former building (first visible 1944)	15
	46	1954	Former building (first visible 1944)	11, 76, 95, 96, 107 - 109, 116, 118, 119
	47	1954	Former landscaping (first visible 1944)	12
	48	1954	Road (former landscaping - first visible 1944)	12, 78
	49	1954	Former building (first visible 1944)	13
	50	1954	Road (former landscaping - first visible 1944)	14, 79
	51	1954	Structure (slab or new building); (former building - first visible 1944)	15, 81, 82
	52	1954	Former building (first visible 1944)	15
	53	1954	Structure (slab or new building); (former building - first visible 1944)	15, 83
	54	1954	Former landscaping (first visible 1944)	16

Of Potential Concern?	Anomaly #	Year of Change	Discussion	Related Anomalies ¹
	55	1954	Structure (slab or new building); (former building - first visible 1944)	17, 84
	56	1954	Former building (first visible 1944)	17
	57	1954	Structure (slab or new building); (former building - first visible 1944)	17, 85
	58	1954	Former landscaping (first visible 1944)	18
	59	1961	Road	90, 97, 110
	60	1961	Pre-existing trail (first visible 1954)	22 - 24, 26 - 28, 30, 91, 98 - 101
Yes	61	1961	Cleared area	34, 92, 102, 114
Yes	62	1961	Cleared area	34, 92, 102, 103, 114, 115
Yes	63	1961	Trees cleared	32, 33, 34
	64	1961	Former structure (first visible 1954)	37
	65	1961	Former structure (first visible 1954)	37
	66	1961	Former structure (first visible 1954)	38
	67	1961	Former structure (first visible 1954)	38
	68	1961	Former road (first visible 1944)	10, 44
	69	1961	Former road (first visible 1944)	10, 44
	70	1961	Former road (first visible 1944)	10, 44
	71	1961	Former road (first visible 1944)	10, 44
	72	1961	Former road (first visible 1944)	10, 44, 95, 107, 108, 116, 117
Yes	73	1961	Cleared area	95, 107, 117
	74	1961	Former road (first visible 1944)	10, 44
Yes	75	1961	Cleared area	95, 108, 116
Yes	76	1961	Cleared area	46, 77, 95, 96, 107 - 109, 116 - 118
	77	1961	Former road (first visible 1944)	76, 96, 109, 118
	78	1961	Former road (first visible 1944)	48
	79	1961	Former road (first visible 1944)	50
	80	1961	QA (numbering error)	
	81	1961	Former structure (first visible 1954)	15, 51
	82	1961	Former structure (first visible 1954)	15, 51

Of Potential Concern?	Anomaly #	Year of Change	Discussion	Related Anomalies¹
	83	1961	Former structure (first visible 1954)	15, 53
	84	1961	Former structure (first visible 1954)	17, 55
	85	1961	Former structure (first visible 1954)	17, 57
	86	1961	Former road (first visible 1944)	10, 44
	87	1961	Former structure (first visible 1954)	40
	88	1961	Former structure (first visible 1954)	40, 93
	89	1961	Former structure (first visible 1954)	40
	90	1969	Pre-existing road (first visible 1961)	59, 97, 110
	91	1969	Pre-existing trail (first visible 1954)	22 - 24, 26 - 28, 30, 60, 98 - 101
	92	1969	Pre-existing cleared area (first visible 1961)	34, 61, 62, 102, 103, 114, 115
Yes	93	1969	Trees cleared	40, 88
Yes	94	1969	Trees cleared	None
	95	1969	Pre-existing cleared area (first visible 1961)	10, 44, 46, 72, 73, 75, 76, 107, 108, 116, 117
Yes	96	1969	Trail	46, 76, 77, 109, 118
	97	1982	Pre-existing road (first visible 1961)	59, 90, 110
	98	1982	Former trail (first visible 1954)	22 - 24, 26, 60, 91
	99	1982	Former trail (first visible 1954)	24, 26 - 28, 60, 91
	100	1982	Former trail (first visible 1954)	28, 60, 91
	101	1982	Former trail (first visible 1954)	28, 30, 60, 91
	102	1982	Parking lot	34, 61, 62, 92, 114
	103	1982	Former cleared area (first visible 1961)	34, 62, 92, 115
Yes	104	1982	Shuffle Pit (as determined by Parson's Engineering Science, Inc.)	112
Yes	105	1982	Trees cleared	None
Yes	106	1982	Trees cleared	None
	107	1982	Former cleared area	10, 44, 72, 73, 76, 95, 117
	108	1982	Pre-existing cleared area (first visible 1961)	10, 44, 72, 75, 76, 95
	109	1982	Pre-existing trail (first visible 1969)	46, 76, 77, 96, 118
	110	1994	Pre-existing road (first visible 1961)	59, 90, 97

Of Potential Concern?	Anomaly #	Year of Change	Discussion	Related Anomalies¹
Yes	111	1994	Trees cleared	None
	112	1994	Pre-existing shuffle pit (first visible 1982)	104
Yes	113	1994	Trees cleared	None
	114	1994	Pre-existing parking lot (first visible 1982)	34, 61, 62, 92, 102
	115	1994	Parking lot	34, 62, 92, 103
	116	1994	Pre-existing cleared area (first visible 1961)	10, 44, 46, 72, 75, 76, 95
	117	1994	Pre-existing cleared area (first visible 1961)	10, 44, 72, 73, 76, 95, 107
	118	1994	Pre-existing trail (first visible 1969)	46, 76, 77, 96, 109
Yes	119	1994	Trees cleared	None
Yes	120	1994	Unidentified object	None
Yes	121	1994	Unidentified object	None
Yes	122	1994	Trees cleared	None

¹ Related anomalies refer to anomalies which are carried forward from year to year (e.g., a trail) or anomalies which change (e.g., the extension or widening of a trail or cleared area).

13.4 ANOMALIES OF POTENTIAL CONCERN

One hundred twenty-one anomalies were identified during the photographic interpretation of the Field Personnel Decontamination Area. All anomalies, except two unidentified objects, have been resolved. Twenty-five anomalies are considered to be of potential concern. To facilitate anomaly tracking, the anomalies of potential concern were mapped using the anomaly tracking number assigned in the year-by-year analysis (see Table 2 and Fig. 4). Table 2 provides information for each anomaly of potential concern, including the anomaly tracking number, coordinates for the approximate center of the anomaly (coordinates provided in Alabama State Plane East, North American Datum [NAD] 83), the year the change occurred, and the reason for the anomaly.

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Fig. 3a

Fig. 3b

Fig. 3c

Fig. 3d

Fig. 3e

Fig. 3f

Fig. 3g

Fig. 3h

Table 2. Field Personnel Decontamination Area - Anomalies of Concern

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
22	668426.29838	1166092.67748	1954	A new trail is evident in the 1954 photographs. A building is visible in this location in the 1944 photographs (the former building was first visible in photographs acquired in 1944). The trail remained in use in 1969 but was no longer evident in 1982.
23	668441.88832	1166090.18309	1954	A new trail is evident in the 1954 photographs. Landscaping is visible in this location in the 1944 photographs (the landscaping occurred near governmental buildings which were evident in photographs acquired in 1944). The trail remained in use in 1969 but was no longer evident in 1982.
24	668458.37669	1166075.30069	1954	A new trail is evident in the 1954 photographs. Landscaping is visible in this location in the 1944 photographs (the landscaping occurred near governmental buildings which were evident in photographs acquired in 1944). The trail remained in use in 1969 but was no longer evident in 1982.
26	668480.55138	1166077.08754	1954	A new trail is evident in the 1954 photographs. A building is visible in this location in the 1944 photographs (the former building was first visible in photographs acquired in 1944). The trail remained in use in 1969 but was no longer evident in 1982.
27	668524.82682	1166070.85156	1954	A new trail is evident in the 1954 photographs. Landscaping is visible in this location in the 1944 photographs (the landscaping occurred near governmental buildings which were evident in photographs acquired in 1944). The trail remained in use in 1969 but was no longer evident in 1982.
28	668562.86629	1166075.84034	1954	A new trail is evident in the 1954 photographs. A building is visible in this location in the 1944 photographs (the former building was first visible in photographs acquired in 1944). The trail remained in use in 1969 but was no longer evident in 1982.
30	668600.90575	1166064.61558	1954	A new trail is evident in the 1954 photographs. Landscaping is visible in this location in the 1944 photographs (the landscaping occurred near governmental buildings which were evident in photographs acquired in 1944). The trail remained in use in 1969 but was no longer evident in 1982.
61	668686.33864	1166043.41326	1961	This area was cleared between 1954 and 1961. The area remained clear in the 1969 photographs. Photographs acquired during 1982 and 1994 show this area being used as a parking lot.

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
62	668686.33864	1165997.89062	1961	This area was cleared between 1954 and 1961. The area remained clear in the 1969 photographs. Photographs acquired in 1982 show vegetation regrowth was underway in this area; however, the 1994 photographs show this area being used as a parking lot.
63	668660.77113	1165980.42989	1961	Trees were cleared from this area between 1954 and 1961. Some vegetation regrowth was underway by 1969 and the area had become predominantly reforested by 1994.
73	668461.21985	1165868.18229	1961	This small area was cleared between 1954 and 1961. A road was present south of this area in photographs acquired during 1944 and 1954. By 1961, the road had deteriorated or had been cleared and this small clearing was present. This area remained clear in photographs acquired in 1969, 1982, and 1994.
75	668392.62410	1165875.66546	1961	This small area was cleared between 1954 and 1961. A road was present south of this area in photographs acquired during 1944 and 1954. By 1961, the road had deteriorated or had been cleared and this small clearing was present. This area remained clear in photographs acquired in 1969, 1982, and 1994.
76	668403.22526	1165835.75521	1961	This area was cleared between 1954 and 1961. A road was present north of this area in photographs acquired during 1944 and 1954. By 1961, the road had deteriorated or had been cleared and this clearing was present. This area remained clear in photographs acquired in 1969, 1982, and 1994.
93	668542.28756	1165919.94091	1969	Trees were cleared from this area between 1961 and 1969. By 1982, vegetation regrowth was underway.
94	668518.59085	1165901.85657	1969	Trees were cleared from this area between 1961 and 1969. By 1982, vegetation regrowth was underway.
96	668412.57923	1165812.05849	1969	A new trail was evident in the 1969 photographs. This area was cleared prior to the acquisition of the 1961 photographs (see anomaly of potential concern 76) and by 1969, was in use as a trail. The trail remained visible in photographs acquired in 1982 and 1994.
104	668529.81560	1166009.73898	1982	An anomalous area is present in the 1982 and the 1994 photographs. Documents prepared by Parsons Engineering Science, Inc. and Environmental Science & Engineering, Inc. identify the anomaly as a shuffle pit.
105	668445.62991	1165904.97456	1982	Trees were cleared from this area between 1969 and 1982. By 1994, vegetation regrowth was underway.
106	668486.78736	1165886.26663	1982	Trees were cleared from this area between 1969 and 1982. By 1994, vegetation regrowth was underway.

Anomaly #	Alabama State Plane Coordinates (approximate anomaly center)		Year of Change	Discussion
	X-Coordinate	Y-Coordinate		
111	668478.68059	1166005.99740	1994	Trees were cleared from this area between 1982 and 1994. This area lies to the west of a building which was first evident in 1982 photographs.
113	668577.20903	1165994.14904	1994	Trees were cleared from this area between 1982 and 1994. This area lies to the east of a building which was first evident in 1982 photographs.
119	668426.92198	1165794.59776	1994	Trees were cleared from this area between 1982 and 1994.
120	668453.73668	1165784.62019	1994	An unidentified object is visible on the 1994 photographs at this location.
121	668454.36028	1165800.83373	1994	An unidentified object is visible on the 1994 photographs at this location.
122	668472.44461	1165797.71575	1994	Trees were cleared from this area between 1982 and 1994.

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Fig 4